Small Business Innovation Research/Small Business Tech Transfer

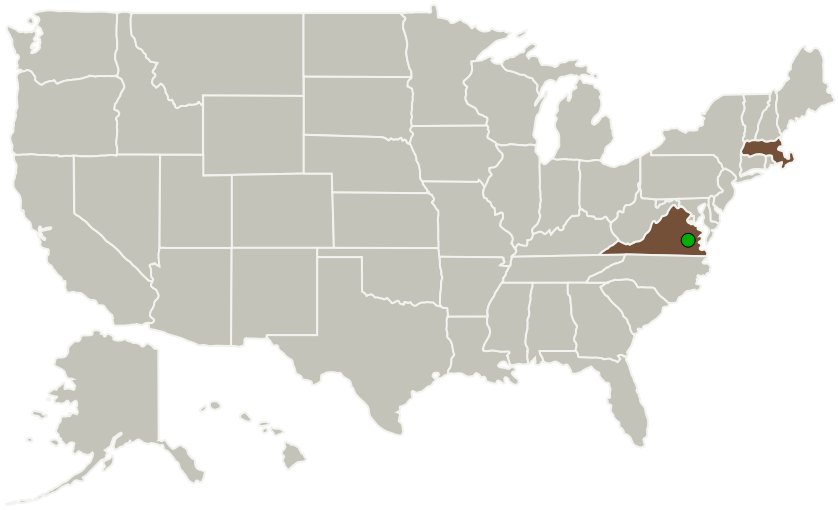
3-Color DPAS Aerosol Absorption Monitor, Phase II

Completed Technology Project (2016 - 2018)

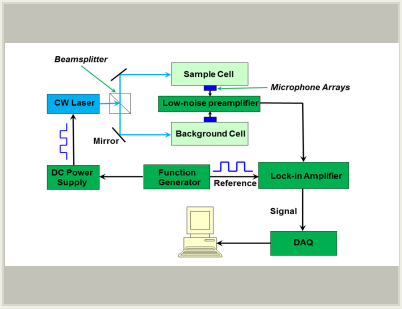
Project Introduction

We propose to develop a highly sensitive and compact RGB DPAS aerosol absorption monitor for NASA's Airborne Measurement Program. It will measure aerosol light absorption simultaneous at three spectral regions: blue, green and red. The proposed measurement technique takes advantage of the current rapid development on high-power semiconductor lasers MEMS microphones. It will eventually weigh less than 25 pounds and consume approximately 300W electrical power. It will also be capable of being remotely controlled and being operated at a variety of sampling pressure conditions for the airborne measurements. Since majority of the electronic and optical components of the proposed system are commercially available except the home-designed acoustic cells, its total manufacturing cost could be less than $20,000 per unit.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Aerodyne Research, Inc	Lead Organization	Industry	Billerica, Massachusetts
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



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Primary U.S. Work Locations	
Massachusetts	Virginia

Project Transitions

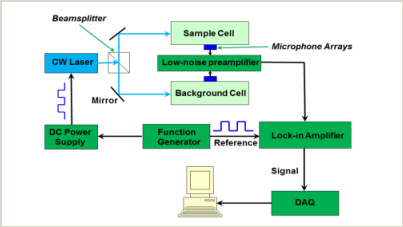
April 2016: Project Start

October 2018: Closed out

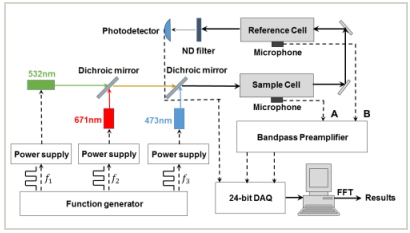
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139498)*

Images



Briefing Chart Image
3-color DPAS Aerosol Absorption Monitor, Phase II
(https://techport.nasa.gov/image/136776)



Final Summary Chart Image
3-Color DPAS Aerosol Absorption Monitor, Phase II
(https://techport.nasa.gov/image/130901)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Aerodyne Research, Inc

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

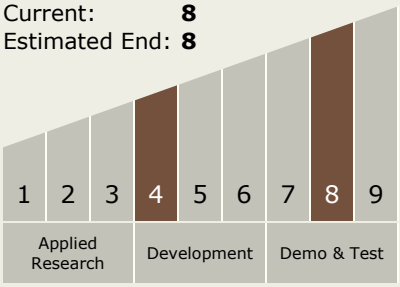
Carlos Torrez

Co-Investigator:

Zhenhong Yu

Technology Maturity (TRL)

Start: **4**
Current: **8**
Estimated End: **8**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System